



GENERAL SUBJECT: Asphalt Concrete Mixtures		NUMBER: MD 262-05
SPECIFIC SUBJECT: Sec. 502.01 Approval of Job-Mix		DATE: September 16, 2005
DIRECTED TO: District Administrators	SIGNATURE: Andrew Mergenmeier, PE <i>Signature on original copy of memorandum</i>	

The purpose of this change is to clearly outline the responsibilities of the asphalt producer and VDOT personnel in the hot mix asphalt mix design approval process. VDOT Materials Division/District personnel and the Virginia Asphalt Association worked cooperatively in developing and documenting this procedure.

Revise Materials Division Manual of Instructions Section 502.01 by deleting the existing paragraph and replacing with the paragraphs below.

Sec. 502.01 APPROVAL OF JOB-MIX

Approval of new and rollover mix designs (mix designs approved in a calendar year other than the current one) for asphalt mixtures shall be in accordance with the procedures designated herein. This is a three-step process: Part A is an initial approval of mix design paperwork; Part B is the testing, analysis and approval of production mix; and Part C is the recordation of average values from at least the last two full lots produced during a calendar year. Under this system rollover mix designs are handled in a similar manner but with Part A waived.

a) Mix Design Approval (Part A)

(1) Initial Superpave Designs

Prior to initial production the asphalt producer must complete a full mix design in accordance with VDOT test methods and procedures. All paperwork and documentation for the mix design shall be submitted to the District Materials Division for review and Part A approval. The Department has a maximum of 10 business days to review and approve or return with recommendations for pre-paving season mix design submittals. It is recognized that it is in the best interest of both the contractor and VDOT to review and approve mix designs during the paving season as quickly as possible, therefore the Department has a maximum of 3 business days to review and approve or return with recommendations mix designs during this time with most being accomplished with 24 hours.

This shall include:

- Mix Design Volumetric Data
- Materials and Mix Gradations
- Permeability Testing (where required)
- Job Mix Formula (JMF)
- Aggregate Properties
- Furnace Correction Factor
- Field Correction Factor ($G_{se} - G_{sb}$)

Upon review of the mix design paperwork, aggregate properties, Furnace Correction Factor, etc. for compliance with VDOT specifications the mix shall be approved for Part A. The authorizing signature and date are indicated on the Part A approval. This approval authorizes the producer to attempt to produce the mix design for Part B approval. Part B approval is required before full mix design production will be permitted.

Note: Material samples, gyratory pills, and TSR samples (or data) are not required to be submitted under Part A.

(2) Rollover Superpave Designs

Mixes that had Part B approval the prior calendar year shall receive Part A approval for the new calendar year provided:

- Aggregate Properties are furnished for the current year
- Furnace Calibration is submitted for the current year
- Field Correction Factor ($G_{se} - G_{sb}$) is submitted for the current year

(3) Initial SMA Designs

Prior to initial production the asphalt producer must complete a full mix design in accordance with VDOT test methods and procedures. All paperwork and documentation for the mix design shall be submitted to the District Materials Division for review and Part A approval. The Department has a maximum of 10 business days to review and approve or return with recommendations for pre-paving season mix design submittals. It is recognized that it is in the best interest of both the contractor and VDOT to review and approve mix designs during the paving season as quickly as possible, therefore the Department has a maximum of 3 business days to review and approve or return with recommendations mix designs during this time with most being accomplished with 24 hours.

This shall include:

- Mix Design Volumetric Data
- Materials and Mix Gradations
- Job Mix Formula (JMF)
- Aggregate Properties
- Furnace Correction Factor
- Field Correction Factor ($G_{se} - G_{sb}$)
- VCA Dry Rodded Condition, G_{ca} and VCA_{mix} values

- F & E aggregate test data

Approval of Part A for SMA mixes is authorization to construct a trial section.

(4) Rollover SMA Designs

Mixes that had Part B approval the prior calendar year shall receive Part A approval for the new calendar year provided:

- Aggregate Properties including F&E, VCA_{drc} and G_{ca} are furnished for the current year (prior to production)
- Furnace Calibration is submitted for the current year (prior to production)

Field Correction Factor ($G_{se} - G_{sb}$) is submitted for the current year

b) Validation of Production Mix Design and General Production Approval (Part B)

Prior to going into full mix production the asphalt producer must obtain Part B of VDOT's Mix Design approval process by demonstrating that the production mix meets VDOT mix design requirements.

(1) Initial Superpave Designs

The asphalt producer has the option of:

1. Going on a limited production of 500 Tons for the first day's production of this initial analysis or,
2. Obtaining prior approval of the mix design during non-VDOT system mix production. If prior approval is obtained the first day's limited production requirement is waived.

Field gyratory samples shall be taken from either the limited production or prior production and analyzed, by both the Department and by the Producer, for compliance with specification requirements and mix design/JMF.

For Limited Production the Department will have a maximum of 24 hours from the time test results are received from the contractor to review and approve or make corrective action recommendations. It is recognized that it is in the best interest of both the contractor and VDOT to review and approve mix designs during the paving season as quickly as possible.

For non-VDOT mix production the Department will have a maximum of 5 business days from the time the sample is taken to review and approve or make corrective action recommendations.

The Producer shall provide the District Materials Division with 24 hour prior notice, whenever possible, before beginning Limited Production. Otherwise it may not be possible for the Department to meet the 24-hour turn around period. The Department shall however give priority to all Part B Limited Production Samples.

If the production mix meets VDOT specifications, approved Part A mix design, and JMF requirements the mix receives Part B approval, which constitutes authorization to go into full production.

In addition, the asphalt producer shall:

- Resolve all discrepancies between production mix gradation, binder, or other deviations and the approved Part A initial mix design and/or JMF within the first 3 lots of produced mix.
- TSR testing of production mix will be run and data furnished the Department within the first 3 lots.
- Furnish aggregate properties and Furnace Calibration for production mix within first 3 lots.

The resulting JMF shall then be used to for Acceptance criteria on all Lots.

Limited Production or off-site mix production for Part B approval that do not meet specifications shall not receive Part B approval and general production authorization. Failing TSR requirements, non-submittal of required data within the allotted time are all grounds for suspension or denial of Part B mix design approval.

(2) Rollover Superpave Designs

The limited production/ off-site mix design approval requirement is waived for rollover mix designs provided Part C from the previous year met specifications and complied with approved mix design and JMF. Mixes failing to meet this requirement must go through the same Part B approval process as for a new mix design.

In addition, the asphalt producer shall:

- Resolve all discrepancies between production mix gradation, binder, or other deviations and the approved Part A initial mix design, JMF or Part C from the previous year within the first 3 lots of produced mix.
- TSR testing of production mix will be run and data furnished the Department within the first 3 lots.

Aggregate properties and Furnace Calibration shall be furnished for production mix within first 3 lots.

(3) Initial SMA Designs

Prior to going into full SMA mix production the asphalt producer must obtain Part B of VDOT's Mix Design approval process by demonstrating that the production mix meets VDOT mix design requirements. Because of the challenges associated with the design, production, placement and compaction of SMA, a trial section is required for SMA at a location identified in the contract. Both mix design requirements and in-place density compliance are evaluated as part of the trial section approval process. The Department will have a maximum of 24 hours from the time test results are received from the contractor to review and approve or make corrective action recommendations. It is recognized that it is in the best interest of both the contractor and VDOT to review and approve mix designs during the paving season as quickly as possible.

The Producer shall provide the District Materials Division with 24 hour prior notice, whenever possible, before beginning trial section. Otherwise it may not be possible for the Department to meet the 24-hour turn around period. The Department shall however give priority to all Part B trial section samples.

Approval of the trial section by the Department constitutes Part B approval and is authorization for unrestricted mix production.

In addition, the asphalt producer shall:

- Resolve all discrepancies between production: mix gradation, binder, or other deviations and the approved Part A initial mix design, JMF or Part C from the previous year within the first 3 lots of produced mix.
- TSR testing of production mix will be run and data furnished the Department within the first 3 lots.
- Aggregate properties and Furnace Calibration shall be furnished for production mix within first 3 lots.

The resulting JMF shall then be used to for Acceptance criteria on all Lots

(4) SMA Rollover Mix Design Approval

The SMA trial section requirement is waived for rollover SMA mix designs provided Part C from the previous year met specifications requirements, complied with approved mix design and JMF, and met density requirements. Mixes that do not meet these requirements must go through the same trial section/Part B approval process as for a new mix design.

In addition, the asphalt producer shall:

- Resolve all discrepancies between production: mix gradation, binder, or other deviations and the approved Part A initial mix design, JMF or Part C from the previous year within the first 3 lots of produced mix.
- TSR testing of production mix will be run and data furnished the Department within the first 3 lots.

Aggregate properties and Furnace Calibration shall be furnished for production mix within first 3 lots.

b) Closeout Lots (Part C)

At the end of the calendar year the averages from at least the last two full lots of mix shall be recorded and dated under Part C of Mix Design Approval. This shall include the gradation, binder content, Rice value, and mix volumetrics.

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Commissioner
Chief Engineer
Division Administrators
Resident Administrators
District Materials Engineers
District Construction Engineers
District Maintenance Engineers
American Concrete Paving Association
NE Chapter, Southern Region

Virginia Asphalt Association
Virginia Dept. of Minority Business Enterprise
Virginia Ready-Mixed Concrete Association
Federal Highway Administration
Virginia Transportation Construction Alliance
Precast Concrete Association of Virginia